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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Houjin Huang

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SNR DENTON US LLP

P.O. BOX 061080

CHICAGO, IL 60606-1080

EXAMINER

EVANS, GEOFFREY S

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/564,565	<b>Applicant(s)</b> HUANG ET AL.	
	<b>Examiner</b> GEOFFREY S. EVANS	<b>Art Unit</b> 3742	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-15 is/are pending in the application.
- 4a) Of the above claim(s) 8-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20110510</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The drawings are objected to because in figure 1 the battery or direct current source (not identified by a numeral) should be reversed (as shown by element 12 in figure 1 of Inoue in U.S. Patent No. 4,504,721) since electrode 3 is an anode (negatively charged) and electrode 2 is a cathode (positively charged). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

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regards as the invention. In claim 6 on line 2 "bowl-like electrode" is indefinite and on line 3 "rod-like electrode" is indefinite.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1,5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Huang et al. in the article "Large-Scale rooted growth of aligned super bundles of single-walled carbon nanotubes using a direct arc plasma method " as evidenced by Huang et al. in the article "High-Quality Double Walled Carbon Nanotube Super Bundles Grown in a Hydrogen-Free Atmosphere". Huang et al. in the article "Large-Scale rooted growth of aligned super bundles of single-walled carbon nanotubes using a direct arc plasma method" discloses that single walled carbon nanotubes can be grown using a device where a catalyst is positioned on the interior surface of a bowl shaped first electrode (cathode, see figure 1 (a)) and a rod shaped second electrode (see page 8, column 2) that is positioned such that its tip lies within the void, and an arc discharge occurs (see page 8, column 1, line 17) and on page 9, column 2, first full paragraph it is disclosed that the atmosphere wherein the arc discharge occurs is a reduced pressure atmosphere (680 Torr) consisting of a very pure helium gas (see page 9, column 1, line 10). Huang et al. in the article "High-Quality Double Walled Carbon Nanotube Super Bundles Grown in a Hydrogen-Free Atmosphere" discloses (see page 8794, column 1, line 28-30) that the article "Large-Scale rooted growth of aligned super bundles of single

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walled carbon nanotubes using a direct arc plasma method" frequently produces DWNTs (double walled carbon-nanotubes). This statement is considered to show that the characteristic of the process disclosed in the article "Large-Scale rooted growth of aligned super bundles of single walled carbon nanotubes using a direct arc plasma method" inherently creates double walled carbon nanotubes in addition to single walled carbon nanotubes. Please note that MPEP Section 2131.01 permits another reference to be cited in a 102 rejection to show that the characteristic not disclosed in the reference is inherent. Please also note that the critical date of extrinsic evidence need not antedate the filing date. See MPEP Section 2124. Regarding claim 7, the arc discharge is constant (as contrasted with a pulsed arc or spark discharge), therefore the process continually produces double walled carbon nanotubes (in addition to single walled carbon nanotubes).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. in the article "Large-Scale rooted growth of aligned super bundles of single-walled carbon nanotubes using a direct arc plasma method" in view of Huang et al. in the article "High- Quality Double Walled Carbon nanotubes Super Bundles Grown in a Hydrogen-Free Atmosphere". Huang et al. in the article "Large-Scale rooted growth of aligned super bundles of single-walled carbon nanotubes using a direct arc plasma method" discloses that single walled carbon nanotubes can be grown using a device where a catalyst is positioned on the interior surface of a bowl shaped first electrode(cathode, see figure 1(a)) and a rod shaped second electrode (see page 8, column 2) that is positioned such that its tip lies within the void, and an arc discharge occurs (see page 8, column 1, line 17), and on page 9, column 2, first full paragraph it is disclosed that the atmosphere wherein the arc discharge occurs is a reduced pressure atmosphere( 680 Torr) consisting of a very pure helium gas (see page 9, column 1, line 10). Huang et al. in the article "Large-Scale Rooted Growth of aligned super bundles of single-walled carbon nanotubes using a direct arc plasma method" does not explicitly disclose making double walled carbon nanotubes. Huang et al in the article "High-Quality Double Walled Carbon Nanotubes Super Bundles Grown in a Hydrogen-Free Atmosphere" teaches the desirability of double walled carbon nanotubes (see first paragraph of the article) and that the process disclosed in Huang et al. in the article "Large-Scale rooted growth of aligned super bundles of single walled carbon nanotubes

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using a direct arc plasma method” frequently produces double walled carbon nanotubes (see page 8794,column 1,lines 28-30) . It would have been obvious to adapt Huang et al. in the article “Large- Scale rooted growth of aligned super bundles of single-walled carbon nanotubes using a direct arc plasma method" in view of Huang et al. in the article "High Quality Double Walled Carbon nanotubes Super Bundles Grown in a Hydrogen-Free Atmosphere” to provide this to make double walled carbon nanotubes.

8. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

9. Applicant's arguments filed 9 May 2011 have been fully considered but they are not persuasive. Regarding Applicant's arguments concerning the drawings, entries in the web site “Wikipedia” can be changed by anyone; therefore its definitions and explanations are not authoritative and not persuasive. As shown in figure 1 of the instant application the circuit (battery and two electrodes) can be only one mode of operation without changing the connections of terminals of the battery to the electrodes. Therefore the “operating mode” argument is not persuasive. The fact that the Moravsky et al. reference (WO 02/30816) has incorrect drawings does not permit the instant application's drawings to be incorrect.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The publication date search of 7/12/2011 discloses that the publication of “High Quality Double Walled Carbon Nanotube Super Bundles Grown in a

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Hydrogen-Free Atmosphere” was after the filing date of the instant Japan Priority document of Japan Patent document No. 2003-197339.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEOFFREY 3742 S. EVANS whose telephone number is (571)272-1174. The examiner can normally be reached on Mon-Fri 7:30AM to 4:00 PM (flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GEOFFREY S EVANS/  
Primary Examiner, Art Unit 3742